

N° 8417



A.D. 1914

Date of Application, 3rd Apr., 1914

Complete Specification Left, 5th Oct., 1914—Accepted, 1st Apr., 1915.

PROVISIONAL SPECIFICATION.

Improvements in or relating to the Valves of Internal Combustion Engines.

We, THE ENFIELD CYCLE COMPANY, LIMITED, Manufacturers, and FRANK WALKER SMITH, Engineer, both of Enfield Works, Redditch, in the County of Worcester, do hereby declare the nature of this invention to be as follows:—

5 The present invention has relation to the valves employed in internal combustion engines of the poppet or mushroom type and the invention has for its object to provide a valve which is cheap to manufacture strong and reliable in use and efficient in action.

10 According to the present invention the stem preferably of circular section is of wrought iron or other suitable material and the head is cast on to the extremity thereof and by this arrangement a particularly satisfactory valve is provided.

15 Conveniently an enlargement in the form of an annular projecting rib may extend around the extremity of the stem and this extremity may be placed in the mould and the metal poured therein to form the circular head of desired configuration. Upon the head having solidified it will be understood that same is rigidly and permanently positioned to the upper extremity of the stem being prevented from endlong withdrawal on account of the aforementioned rib in the interior of the head. The head may then be machined all over to the desired shape and to form the angular or conical face for the seating. Preferably the head is adapted to surround the extremity of the stem for some short distance along its length to rigidly position same and the top face of the head may be provided with the usual groove or slot for the reception of a screw driver or the like whilst the metal of the head beneath the seating and adjacent to the stem may be machined to a concave annular formation to permit of the 25 ready passage of the exhaust gases when the valve is in position.

Dated this 2nd day of April, 1914.

LEWIS WM. GOOLD,
Fellow of the Chartered Institute of Patent Agents,
Agent for the Applicants,
30 5, Corporation Street, Birmingham.

COMPLETE SPECIFICATION.

Improvements in or relating to the Valves of Internal Combustion Engines.

35 We, THE ENFIELD CYCLE COMPANY, LIMITED, Manufacturers, and FRANK WALKER SMITH, Engineer, both of Enfield Works, Redditch, in the County of [Price 6d.]



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Improvements in or relating to the Valves of Internal Combustion Engines.

Worcester, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to valves employed in internal-combustion engines of the poppet or mushroom type, in connection with which it has before been 5 proposed to employ a steel or other valve spindle furnished with a cast-iron or like head, the valve being manufactured by dividing the head end of the spindle into sections, upsetting, burring, roughening, or otherwise distorting said sections, coating same with a suitable soldering, brazing, or fluxing material, and casting the valve head there-around. According to the present invention, 10 the valve stem which may be of wrought iron or other suitable material is furnished around its head extremity, and which extremity is solid and undivided, with an annular projecting rib, the valve head of cast-iron or other suitable material being cast around the head end of the spindle, the remainder of the latter being left uncovered, and a valve which is cheap to manufacture, strong, 15 durable, reliable in use, and efficient in action, is thereby obtained. It has before been proposed to provide a pin or core of wrought iron or the like, having an annular flange formed thereon towards one end, and around which pin or core the valve is cast, but in this case the cast portion of the valve has extended throughout the entire length of the spindle. 20

In order that this invention may be clearly understood, and readily carried into practice, reference may be had to the appended explanatory drawing, which illustrates one form of valve according to the present invention, and on which *a* is the stem, and *b* the head which is cast on to the extremity thereof. An enlargement in the form of an annular projecting rib *a'* extends around 25 this extremity of the stem *a*, and this extremity is placed in the mould and the metal poured therein to form the circular head *b* of desired configuration. Upon the head *b* having solidified, it is rigidly and permanently connected to, and positioned in relation to, the upper extremity of the stem *a*, being prevented from endlong withdrawal on account of the aforementioned rib *a'* in the interior 30 of the head. The head *b* may then be machined all over to the desired shape, and to form the angular or conical face for the seating. Preferably the head *b* is adapted to surround the extremity of the stem *a* for some short distance along its length to rigidly position same, and the top face of the head may be provided with the usual groove or slot for the reception of a screw driver or the 35 like, whilst the metal of the head beneath the seating and adjacent to the stem may be machined to a concave annular formation to permit of the ready passage of the exhaust gases when the valve is in position.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that 40 what we claim is:—

The herein-described and illustrated construction of valve suitable for an internal-combustion engine, in which the valve stem, which may be of wrought iron or other suitable material, is furnished around its head extremity, and which extremity is solid and undivided, with an annular projecting rib, a valve 45 head of cast iron or other suitable material being cast around the head end of the spindle, so that the remainder of the latter is left uncovered.

Dated this 11th day of March, 1915.

LEWIS WM. GOOLD,
Fellow of the Chartered Institute of Patent Agents, 50
Agent for the Applicants,
5, Corporation Street, Birmingham.

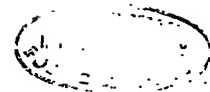
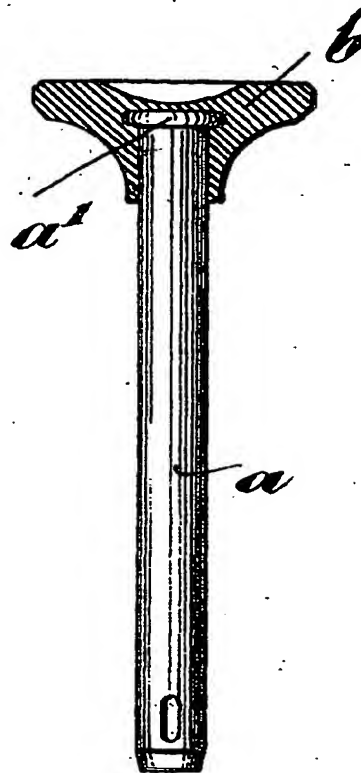
Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1915.

A.D. 1914. APRIL 3. N^o. 8417.

ENFIELD CYCLE CO. & another's COMPLETE SPECIFICATION.

(1 SHEET)

[This Drawing is a full-size reproduction of the Original.]



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